



AF/1700

In the United States Patent and Trademark Office

Appellant: Mr. A. Burazin et al.
Serial No.: 09/441,987
Confirmation No.: 5262
Filed: 11/17/99
For: ROLLS OF TISSUE SHEETS
HAVING IMPROVED
PROPERTIES

Docket No.: 13,497.2
Group: 1772

Examiner: A. Chevalier
Date: December 11, 2002

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Appeal Brief Transmittal Letter

ASSISTANT COMMISSIONER FOR PATENTS
Washington, D.C. 20231

Sir:

Pursuant to 37 C.F.R. 1.192, transmitted herewith in triplicate is an Appeal Brief pursuant to the Notice of Appeal which was mailed on October 23, 2002.

Please charge the \$320.00 fee, pursuant to 37 C.F.R. 1.17(c), which is due to Kimberly-Clark Worldwide, Inc. deposit account number 11-0875. This Appeal Brief Transmittal Letter is submitted in duplicate.

Respectfully submitted,

M. A. BURAZIN ET AL.

By: Gregory E. Croft

Gregory E. Croft

Registration No.: 27,542

CERTIFICATE OF MAILING

I, Judy Garot, hereby certify that on December 11, 2002 this document is being deposited with the United States Postal Service as first-class mail, postage prepaid, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

By: Judy Garot

Judy Garot



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Brief on Appeal to the Board of Patent Appeals and Interferences

ASSISTANT COMMISSIONER FOR PATENTS
Washington, D.C. 20231

Sir:

Pursuant to 37 C.F.R. 1.192 Appellants respectfully submit this Brief in support of their Appeal of the **Final Rejection** of claims 1-22 and 48-69 which was mailed on May 8, 2002.

On October 23, 2002, Appellants, pursuant to 37 C.F.R. 1.191 mailed a timely Notice of Appeal. Thus, the time period for filing this Brief ends on December 23, 2002.

In accordance with 37 C.F.R. 1.192(a) this Appeal Brief is filed in triplicate.

Real Party in Interest

The present Application has been assigned to the Kimberly-Clark Worldwide, Inc.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of the Claims

Claims 1-22 and 48-69 remain in the application with claims 1-22 and 48-69 being finally rejected.

Status of Amendments Filed Subsequent to Final Rejection

No Amendments After Final Rejection have been submitted. A Response After Final Rejection was filed on August 1, 2002, resulting in an Advisory Action being mailed on September 3, 2002.

Summary of the Invention

The invention is a roll of tissue having improved properties. These improved roll properties, namely an improved combination of roll bulk and roll firmness, are attained by modifying the tissue sheet prior to being wound into the roll. The tissue sheet is modified either by imparting cross-machine direction dominant bar-like protrusions to the surface of the tissue sheet by using specially-woven transfer fabrics during manufacture of the tissue sheet and/or by offsetting recurring surface features of the sheet relative to the surface features of adjacent sheets within the roll, such as by providing a throughdryer fabric with an offset seam. Both techniques provide the resulting tissue sheet with the capability, when wound into a roll, to provide an improved combination of roll bulk and roll firmness.

The Issues Presented

The first issue is whether or not all of the pending claims (1-22 and 48-69) are unpatentable over U.S. 5,672,248 to Wendt et al under 35 U.S.C. 102(b).

The second issue is whether or not all of the pending claims (1-22 and 48-69) are unpatentable over U.S. 5,672,248 to Wendt et al. under 35 U.S.C. 103(a).

Grouping of the Claims

For purposes of this appeal only, all of the claims stand or fall together as a group.

Argument

Claims 1-22 and 48-69 stand rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. 5,672,248 to Wendt et al., which teaches a method of making high bulk uncreped throughdried tissue sheets useful for roll products. Although Wendt et al. does not disclose any roll properties, the basis for rejection presumes that the roll properties of Wendt et al would be the same as or similar to that claimed by Appellants because the overall sheet properties of the tissue sheets of Wendt et al. are similar to those used by Appellants in making up Appellants' claimed rolls of tissue. However, as will be explained below, roll properties and sheet properties are very different and, because of variations in winding tension and nesting, it does not follow that winding tissue sheets with certain similar sheet properties can be expected to result in similar roll properties.

Briefly, by way of background, uncreped throughdried processes such as those described in the cited Wendt et al. reference provide tissue sheets having very high sheet bulk due in part to their 3-dimensional topography. However, when wound into a roll, these sheets will "nest" to varying degrees with adjacent portions of the sheet within the roll, similar to a stack of nested egg cartons, depending

upon the winding tension. If these high bulk sheets are tightly wound into a roll to provide high roll firmness, the resulting roll will have a relatively small diameter for a given length of tissue sheet and also will have a relatively low roll bulk (bulk is the inverse of density). On the other hand, if the winding operation is set to achieve a particular roll diameter, which is often the case in commercial operations, these highly 3-dimensional tissue sheets tend to end up with more air space between consecutive wraps around the roll. This air space contributes to a very high roll bulk, but the resulting roll can be "mushy" and the roll firmness is very low, which is unsatisfactory.

Appellants have found a way to produce rolls of tissue having both high roll bulk and high roll firmness. While Appellants generally follow the teachings of Wendt et al. to make tissue sheets in accordance with Appellants' invention (Wendt et al. was incorporated by reference and used as a control), Appellants went a step further in modifying the structure of the resulting tissue sheet within the roll in one or more ways to provide improved roll properties. More particularly, as discussed in Appellants' specification, an example of one way to modify the tissue sheet is to dry the tissue sheet using a throughdrying fabric that is assembled with an "offset" seam to skew the pattern of the fabric from the machine direction and, hence, also skew the 3-dimensional surface pattern imparted to the dried tissue sheet. Referring back to the earlier egg carton analogy, this would be similar to slightly offsetting each egg carton prior to stacking them, resulting in a substantially greater stack height than compared to the nested stack. An example of another way to modify the tissue sheet to produce rolls of tissue in accordance with this invention is to weave the transfer fabric in a manner that creates cross-machine dominant troughs in the surface of the transfer fabric that correspondingly create cross-machine direction bar-like protrusions on the surface of the resulting tissue sheet. Again, back to the egg carton analogy, this would be analogous to placing a dowel across some of the egg carton cavities so the cartons cannot nest. Either way produces a tissue sheet that, when wound into a roll, produces a roll with a unique and unobvious improved combination of roll bulk and roll firmness properties. At the same time, the overall sheet properties are not significantly changed, if at all. In other words, by modifying the sheet topography from one wrap of the roll to another, the Appellants' invention changes the relationship between sheet properties and the resulting roll properties.

Returning now to the grounds for rejection, the rejections are based on the assumption that the tissue sheets produced by Wendt et al., when wound into rolls, either inherently exhibit the roll properties claimed by Appellants or, if that is not the case, it would nevertheless be obvious to modify the tissue sheets of Wendt et al. such that when wound into rolls, they would exhibit the roll properties claimed by Appellants. However, there is nothing in the teachings of Wendt et al. to support either basis.

Because the nesting phenomenon has a substantial impact on roll properties, it does not follow that tissue sheets having many of the same properties, such as sheet bulk, basis weight, single sheet caliper, geometric mean modulus/geometric mean tensile strength, absorbent capacity, and absorbent

rate, will produce rolls having the same roll bulk and roll firmness. This is because these sheet properties have little impact on nesting compared to the sheet topography of successive wraps when the sheet is wound into a roll. Those skilled in the tissue arts will appreciate that subtle structural features in tissue sheets or the manner in which they are wound can have a major impact on roll properties. This is illustrated in Appellants' Example 14, which was used as a "control", meaning that the inventive features of Appellants' invention were not operative. In Example 14, which substituted a normal, smooth transfer fabric for the cross-machine direction trough-containing transfer fabric of Example 1 (Appellants' invention), a high bulk tissue sheet was wound under low tension in order to meet an acceptable target roll diameter, resulting in a roll having a reasonably high roll bulk (17.0 cc/gram). At the same time, the resulting roll also had a poor roll firmness value (10.4 millimeters). Appellants point out that Example 14, which started with a tissue having a high sheet bulk and made in accordance with the teachings of Wendt et al., produced a roll of tissue which does not fall within the scope of the appealed claims. Although the Examiner has not accepted the assertion that Example 14 represents tissue sheets made in accordance with the teachings of Wendt et al., Appellants nevertheless point out that the process of Example 14 is stated to be made in accordance with Appellants' Figure 1 and that Appellants' Figure 1 is identical to Figure 1 of Wendt et al. It is also pointed out that the tissue sheets of Appellants' Examples 1 and 14 both had substantially the same sheet bulk, yet they did not produce rolls having the same combination of roll bulk and roll firmness. One of ordinary skill in the art could only conclude that the process of Wendt et al., absent some further modification, would not inherently and necessarily produce rolls of tissue having high bulk and high firmness as claimed by Appellants. Therefore the teachings of Wendt et al. do not anticipate Appellants' claims.

With regard to the rejection based on obviousness, there is simply no suggestion in the teachings of Wendt et al. to further modify the tissue sheet to provide a roll of tissue having high roll bulk and high roll firmness at the same time. In fact, the teachings of Wendt et al. are entirely silent with respect to roll properties and, as shown above, Wendt et al. does not inevitably produce tissue sheets having the characteristics that result in rolls having the properties claimed by Appellants. As taught by Appellants' specification, *something* must be done to the topography of contact between successive wraps in the roll to elevate the roll bulk/firmness levels to that claimed by Appellants, yet there is no suggestion in the teachings of Wendt et al. to lead one of ordinary skill in the art to do so. As previously discussed, Appellants have discovered ways of forming the tissue sheets differently, such as by using a different transfer fabric that creates cross-machine direction dominant bar-like protrusions in the sheet or by manufacturing the throughdrying fabric with an offset seam. Either or both of these two approaches provide roll properties that are unique, even though many of the sheet properties are substantially the same as the tissue sheets of Wendt et al. Therefore Appellants' claims are not obvious from the

teachings of Wendt et al.

Conclusion

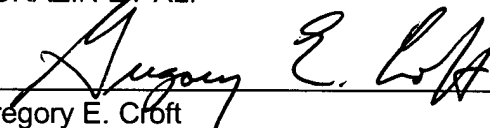
For all of the reasons stated above it is believed that the rejection of Appellants' claims has been shown to be improper and should be **reversed** by the Board.

Please charge the \$320.00 fee, pursuant to 37 C.F.R. 1.17(c), for filing this Appeal Brief to Kimberly-Clark Worldwide, Inc. deposit account number 11-0875. Any additional prosecutorial fees which are due may also be charged to deposit account number 11-0875.

The undersigned may be reached at: (920) 721-3616

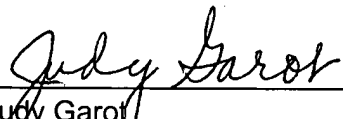
Respectfully submitted,

M. A. BURAZIN ET AL.

By: 
Gregory E. Croft
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By: 
Judy Garot

Appendix – The Claims On Appeal

The claims on appeal are:

1. A roll of tissue having a roll bulk of 16 cubic centimeters or greater per gram and a roll firmness of 8 millimeters or less.
2. The roll of tissue of claim 1 wherein the roll firmness is about 7 millimeters or less.
3. The roll of tissue of claim 1 wherein the roll firmness is about 6 millimeters or less.
4. The roll of tissue of claim 1 wherein the roll firmness is from about 4 to about 7 millimeters.
5. The roll of tissue of claim 1 wherein the roll bulk is about 17 cubic centimeters or greater per gram and the roll firmness is about 6 millimeters or less.
6. The roll of tissue of claim 1 wherein the roll bulk is from about 17 cubic centimeters per gram to about 20 cubic centimeters per gram and the roll firmness is from about 4 millimeters to about 7 millimeters.
7. A roll of tissue having a roll bulk/roll firmness ratio of 20 or more square centimeters per gram and a single sheet caliper of from about 0.02 to about 0.05 inch.
8. The roll of tissue of claim 7 wherein the roll bulk/roll firmness ratio is about 25 or more square centimeters per gram.
9. The roll of tissue of claim 7 wherein the roll bulk/roll firmness ratio is from about 25 to about 55 square centimeters per gram.
10. The roll of tissue of claim 9 wherein the single sheet caliper is from about 0.025 to about 0.040 inch.
11. A roll of tissue having a roll bulk/roll firmness ratio of 20 or more square centimeters per gram and a geometric mean stiffness of about 8 or less.
12. The roll of tissue of claim 11 wherein the roll bulk/roll firmness ratio is about 25 or more square centimeters per gram.
13. The roll of tissue of claim 11 wherein the roll bulk/roll firmness ratio is from about 25 to about 55 square centimeters per gram.

14. The roll of tissue of claim 13 wherein the geometric mean stiffness is about 5 or less.
15. The roll of tissue of claim 13 wherein the geometric mean stiffness is from about 2 to about 5.
16. A roll of tissue having a roll bulk/roll firmness/single sheet caliper ratio of about 350 or more centimeters per gram and a geometric mean stiffness of about 8 or less.
17. The roll of tissue of claim 16 wherein the roll bulk/roll firmness/single sheet caliper ratio is about 390 or more centimeters per gram.
18. The roll of tissue of claim 16 wherein the roll bulk/roll firmness/single sheet caliper ratio is about 430 or more centimeters per gram.
19. The roll of tissue of claim 16 wherein the roll bulk/roll firmness/single sheet caliper ratio is from about 350 to about 550 centimeters per gram.
20. The roll of tissue of claim 19 wherein the geometric mean stiffness is from about 2 to about 5.
21. The roll of tissue of claim 1, 7, 11 or 16 wherein the tissue has an absorbent capacity of 5 or more grams of water per gram of fiber.
22. The roll of tissue of claim 1, 7, 11 or 16 wherein the tissue has an absorbent rate of about 4 seconds or less.
48. A roll of uncreped throughdried tissue having a roll bulk of 16 cubic centimeters or greater per gram and a roll firmness of 8 millimeters or less.
49. The roll of tissue of claim 48 wherein the roll firmness is about 7 millimeters or less.
50. The roll of tissue of claim 48 wherein the roll firmness is about 6 millimeters or less.
51. The roll of tissue of claim 48 wherein the roll firmness is from about 4 to about 7 millimeters.
52. The roll of tissue of claim 48 wherein the roll bulk is about 17 cubic centimeters or greater per gram and the roll firmness is about 6 millimeters or less.
53. The roll of tissue of claim 48 wherein the roll bulk is from about 17 cubic centimeters per gram to about 20 cubic centimeters per gram and the roll firmness is from about 4 millimeters to about 7 millimeters.

54. A roll of uncreped throughdried tissue having a roll bulk/roll firmness ratio of 20 or more square centimeters per gram and a single sheet caliper of from about 0.02 to about 0.05 inch.
55. The roll of tissue of claim 54 wherein the roll bulk/roll firmness ratio is about 25 or more square centimeters per gram.
56. The roll of tissue of claim 54 wherein the roll bulk/roll firmness ratio is from about 25 to about 55 square centimeters per gram.
57. The roll of tissue of claim 56 wherein the single sheet caliper is from about 0.025 to about 0.040 inch.
58. A roll of uncreped throughdried tissue having a roll bulk/roll firmness ratio of 20 or more square centimeters per gram and a geometric mean stiffness of about 8 or less.
59. The roll of tissue of claim 58 wherein the roll bulk/roll firmness ratio is about 25 or more square centimeters per gram.
60. The roll of tissue of claim 58 wherein the roll bulk/roll firmness ratio is from about 25 to about 55 square centimeters per gram.
61. The roll of tissue of claim 60 wherein the geometric mean stiffness is about 5 or less.
62. The roll of tissue of claim 60 wherein the geometric mean stiffness is from about 2 to about 5.
63. A roll of uncreped throughdried tissue having a roll bulk/roll firmness/single sheet caliper ratio of about 350 or more centimeters per gram and a geometric mean stiffness of about 8 or less.
64. The roll of tissue of claim 63 wherein the roll bulk/roll firmness/single sheet caliper ratio is about 390 or more centimeters per gram.
65. The roll of tissue of claim 63 wherein the roll bulk/roll firmness/single sheet caliper ratio is about 430 or more centimeters per gram.
66. The roll of tissue of claim 63 wherein the roll bulk/roll firmness/single sheet caliper ratio is from about 350 to about 550 centimeters per gram.
67. The roll of tissue of claim 66 wherein the geometric mean stiffness is from about 2 to about 5.

68. The roll of uncreped throughdried tissue of claim 48, 54, 58 or 63 wherein the tissue has an absorbent capacity of 5 or more grams of water per gram of fiber.
69. The roll of uncreped throughdried tissue of claim 48, 54, 58 or 63 wherein the tissue has an absorbent rate of about 4 seconds or less.